

Application No. 10/616,512
Amendment Dated November 22, 2004
In Reply to Office Action dated July 23, 2004

Remarks

Claims 1-4 are pending.

Claims 1-4 stand rejected.

Claims 1-4 have been amended.

Claims 1-4 are submitted herein for review.

No new matter has been added.

In paragraph 2 of the Office Action, the Examiner has objected to Figure 1 because it does not include the legend "Prior Art." Applicants have amended Figure 1 accordingly, and respectfully request that this objection be withdrawn.

In paragraph 3 of the Office Action, the Examiner has objected to the abstract for containing overly formal language. Applicants have amended the abstract accordingly, and respectfully request that this objection be withdrawn.

In paragraph 5 of the Office Action, the Examiner has rejected claims 1-3 under 35 U.S.C. § 102(b) as being anticipated by either the applicant's admitted prior art or Munck et al. (U.S. Patent No. 5,576,489). In paragraph 8 of the Office Action, the Examiner has rejected claims 4 under 35 U.S.C. § 103(a) as being unpatentable over the applicant's admitted prior art or Munck.

In the remarks, the Examiner has asserted that the applicant's admitted prior art shows all of the features of the present invention including groove 10, indicated at page 1, lines 30-32, where the vertical groove extends along the cylinders in the vicinity of the partition and being tangential to the partition.

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Applicants respectfully disagree with the Examiner's contentions, and submit the following remarks in response.

The present invention as claimed in independent claim 1, is directed to an oscillating piston volumetric fluid meter having a cylindrical measuring chamber. The volumetric fluid meter has a lateral wall, a bottom and a lid. A lower cylinder and an upper cylinder are provided having the same diameter, which is less than the diameter of the chamber. An inlet orifice and an outlet orifice respectively admit fluid to and evacuate fluid from the chamber.

A cylindrical piston is disposed eccentrically and is guided kinematically in the chamber, effecting an oscillatory movement in the chamber as a result of the displacement of a volume of fluid. A fixed partition between the inlet orifice and the outlet orifice, lies radially between the lateral wall and the lower and upper cylinders, and lies axially between the bottom and the lid, which volumetric meter.

A vertical groove extends at least partly along the lower and upper cylinders and in communication with one of the inlet and outlet orifices. The vertical groove is situated in the vicinity of the fixed partition.

This arrangement provides a distinct advantage over the cited prior art. Prior art arrangements suffer from drawbacks whereby suspended particles become immobilized between the interior diameter of the piston and the exterior diameter of the lower and upper cylinders of the chamber. See background section of the specification page 3, paragraph 3.

The present invention overcomes this drawback by including a vertical groove extending at least partly along the lower and upper cylinders, where the groove is in communication with one of inlet or the outlet orifices. Here the meter prevents immobilization of solid particles

between the interior diameter of the piston and the exterior diameter of the lower and upper cylinders of the chamber, by allowing the particles to enter the groove and exit the chamber via the inlet or outlet orifice in communication with the groove. See specification page 4, paragraphs 5-6, and Figs. 2 and 4.

As stated on page 4, lines 25-32, the present invention states:

“Thanks to the invention, the meter prevents immobilization of solid particles between the interior diameter of the piston and the exterior diameter of the lower and upper cylinders of the chamber, the particles entering the vertical groove. The meter also evacuates particles via one of the orifices in communication with the groove.”

The applicant's admitted prior art, in Fig. 1 (prior art) shows a groove 10 as described on page 10, lines 30-33. However, as noted in that same sentence, this groove is for engagement of the partition 9, also shown in Fig. 1. Groove 10 is not in communication with either the inlet or outlet orifice (7,8) but instead simply retains the edges of the partition 9.

The cited prior art, namely Munck et al., is directed to a measuring device for measuring liquid with particles suspended therein. In Munck grooves 21 and 22 are positioned exclusively along the bottom edge of the chamber. See Fig. 3. Various cross sections shown in Figs 5a – 5i, show nine different shapes for grooves 21 and 22, all of which are located horizontally along the bottom edge. As noted on column 4, lines 37-39, the grooves go around the entire chamber *except:*

“The grooves 21, 22 are made on the entire periphery of the elements 4, 7 comprising them, except for the place in which the partition wall 12 is located.”

The partition wall 12 is held in a vertical groove (not numbered) similar to that found in the applicant's admitted prior art.

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These horizontal grooves 21 and 22 are designed to slowly collect particles that settle out of the liquid being measured, and do not appear to be in communication with either an inlet or outlet port. In fact, in column 5, line 66 to column 6, line 3, the Munck patent describes the clearing of grooves 21 and 22 whereby:

“Furthermore, the grooves 21, 22 are emptied of particles that they have collected during the different tapping operations by a tapping at a high flow rate that causes a degree of turbulence sufficiently great to put these particles back into a state of suspension in the metered water.”

Applicants respectfully submit that neither the applicant's admitted prior art, nor the Munck reference teach or suggest all of the elements of the present invention as claimed in independent claim 1. For example, the applicant's admitted prior art does not teach or suggest a vertical groove extending at least partly along said lower and upper cylinders *and in communication with one of said inlet and outlet orifices*. As noted above, there is no teaching that groove 10 in the applicant's admitted prior art, is in communication with the inlet or outlet orifices. In fact, groove 10 in the applicant's admitted prior art could not be in communication with the inlet or outlet orifices as it would be filled with the edges of partition 9.

Likewise, Applicants submit that the Munck reference also does not teach or suggest all of the elements of the present invention as claimed either. For example, there is no teaching or suggestion for a vertical groove extending at least partly along said lower and upper cylinders *and in communication with one of said inlet and outlet orifices...* First, Munck has the same vertical groove as in the applicant's admitted prior art for supporting the partition, but this vertical groove is not in communication with inlet or outlet orifices, same as in the applicant's admitted prior art.

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Second, grooves 21 and 22 are horizontal and also there is no indication given that they are in communication with the inlet or outlet orifices. As noted above, they are evacuated by stirring the particles back into the liquid for removal. A combination of grooves 21 and 22 and the vertical groove of Munck would also not be analogous with the vertical groove as claimed in the present invention because the specification goes so far, as noted above that the grooves 21 and 22 *do not* extend to the portion of the chamber where partition 12 is held, namely the un-numbered vertical groove.

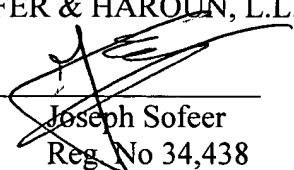
As such, Applicants submit that neither of the cited prior art references, teach or suggest all of the elements of independent claim 1, and respectfully request that the rejection of this claim be withdrawn. Additionally, as claims 2 – 4 depend from independent claim 1, these claims should be allowed for the same reasons.

In view of the forgoing, Applicants respectfully submit that pending claims 1-4 are now in condition for allowance, the earliest possible notice of which is earnestly solicited. If the Examiner feels that an interview would facilitate the prosecution of this Application they are invited to contact the undersigned at the number listed below.

Respectfully submitted,

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By



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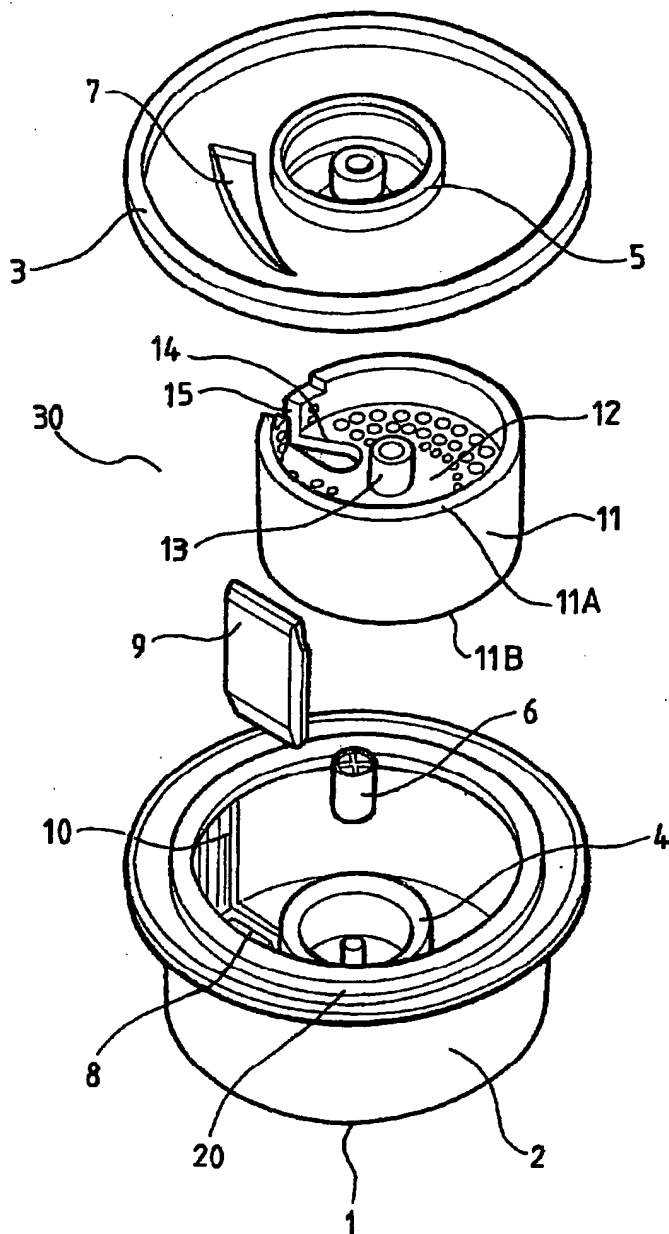
Amendments to the Drawings:

The attached sheet of drawings includes changes to Figure 1. This sheet, which includes Figure 1, replaces the original sheet including Figure 1. In Figure 1, the legend "Prior Art" has been added.

Attachment: Replacement Sheet
Annotated Sheet Showing Changes



FIG. 1



(PRIOR ART)